

BIOLOGICAL STATUS OF *HEDYOTIS NIGRICANS* VAR. *GYPSOPHILA* (RUBIACEAE) IN TEXAS

B.L. Turner

*Plant Resources Center
University of Texas
Austin, TX, 78713, U.S.A.*

Terrell (2001) presented a taxonomic study of the genus *Stenaria* (= *Hedyotis nigricans* and closely related cohorts, sensu Turner 1995). In this he recognized *H. nigricans* var. *gypsophila* as occurring in Trans-Pecos, Texas, citing among his “selected representative specimens” four sheets (cf. Fig. 1), two from Culberson Co., a north-south ridge of limestone outcrops extending for ca. 50 miles from near Van Horn, Texas to near the New Mexico border, and one from the same mountain range in closely adjacent Hudspeth Co.; the fourth collection (*Webster 4501*, MICH) was said to be from the “Madera Canyon” in igneous soils of Jeff Davis County.

Terrell distinguished *H. nigricans* var. *gypsophila* (Fig. 3) from the rest of his concept of the wide-ranging, highly variable *H. nigricans* by the following couplet:

1. Leaves more or less elliptical, 2.5–3.5(–4) times longer than wide; Mexico and south west Texas _____ var. **gypsophila**
1. Leaves usually filiform, linear, narrowly lanceolate, or oblanceolate, more than 4 times longer than wide; corollas 2–8 mm long _____ [var. **nigricans** and closely related cohorts]

Careful scrutiny of the above key will show that the only meaningful character used by Terrell to define his “var. *gypsophila*” is leaf shape. Indeed, Terrell, himself (2001), states that “the most conspicuous character [distinguishing between these elements] is the elliptical leaves on rather small plants...[and] I cannot find any other characters significantly different from var. *nigricans*...”

Regardless, I would like to place on record here that I take many, if not most, of the specimens cited by Terrell (2001) as occurring outside of the regional distributions of *H. n.* var. *gypsophila* (Turner 1995) to be misidentifications of *H. n.* var. *nigricans*, these but leaf and/or habital forms occurring among otherwise typical populations of var. *nigricans*.

This can be readily attested to by reference to the single sheet (*Webster 4501*) of *H. nigricans* var. *gypsophila* cited in the above introduction. A duplicate of this collection at SRSC (Fig. 2) is clearly linear-leaved and could not be identified as var. *gypsophila* by Terrell’s key to varieties. Additionally, its habit and floral features do not conform to those of var. *gypsophila* as described by Turner (1995). Indeed, I have reexamined 200 or more specimens of *H. n.* var. *nigricans*

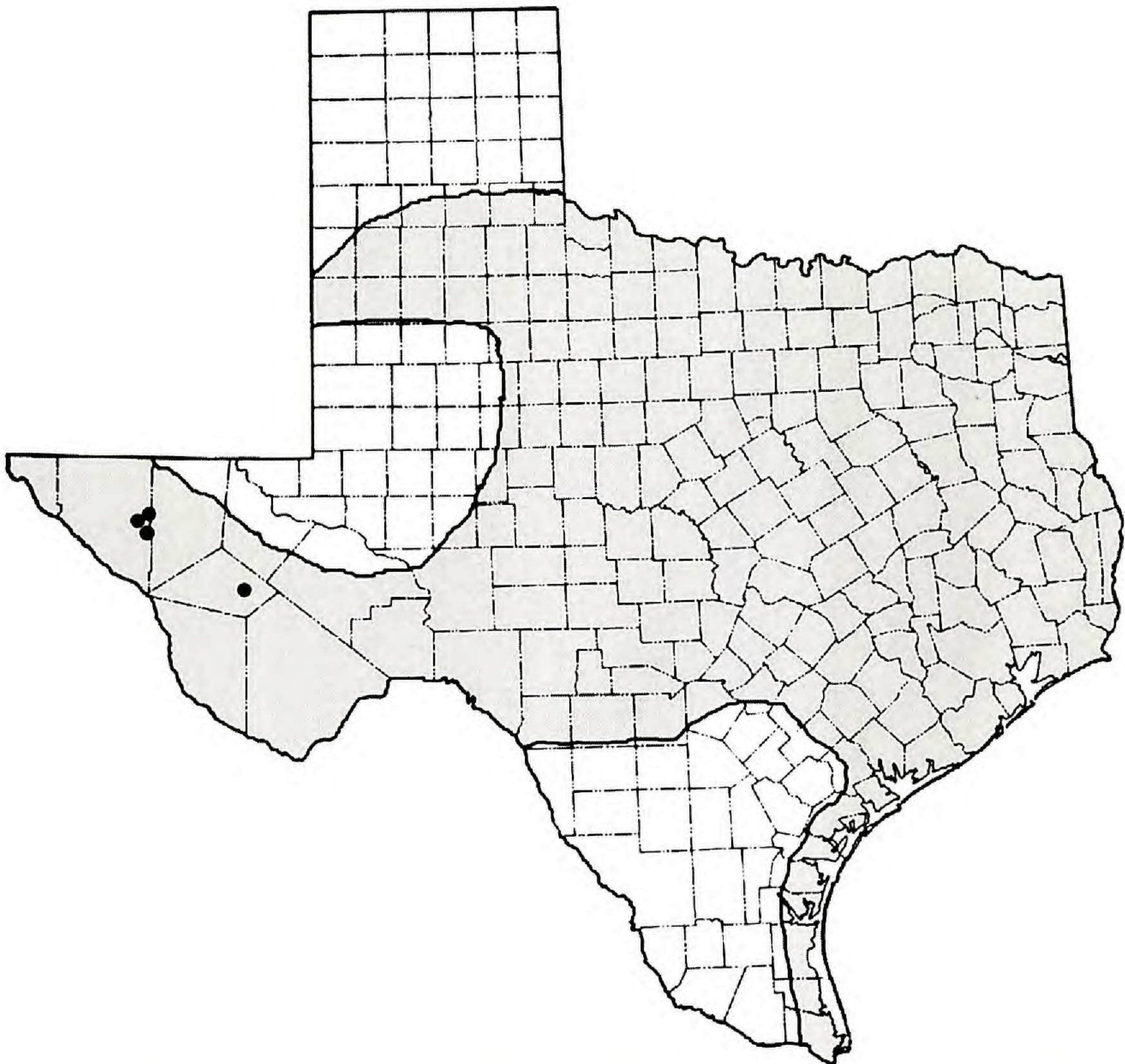


FIG. 1. Generalized distribution of *Hedyotis nigricans* var. *nigricans* in Texas (sensu Turner 1995); dots represent specimens of *H. nigricans* var. *gypsophila* cited by Terrell (2001); I take these to be atypical or misidentified specimens of *H. nigricans* var. *nigricans*.

from Trans-Pecos, Texas (LL, SRSC, TEX) and find not a single plant referable to *H. n.* var. *gypsophila*, including most of the specimens so cited by Terrell (2001).

He further ventures that “I [Terrell] consider the taxon as misnamed, as I recorded only one collection out of 49 Mexican collections from 19 herbaria that mentioned a gypsum substrate. It may be noted that the type specimen came from a gypsum habitat.”

However, had Terrell examined the 49 sheets of this taxon on file at LL, TEX he would have found 12 sheets with labels noting their occurrence on gypsum substrates, and most of the rest from areas known to possess such soils. The truth is that most early collectors did not know the difference between gypsum substrates (CaSO_4) and limestone substrates (CaCO_4), or else they ignored such distinctions. The highly endemic flora occurring on gypsum substrates need

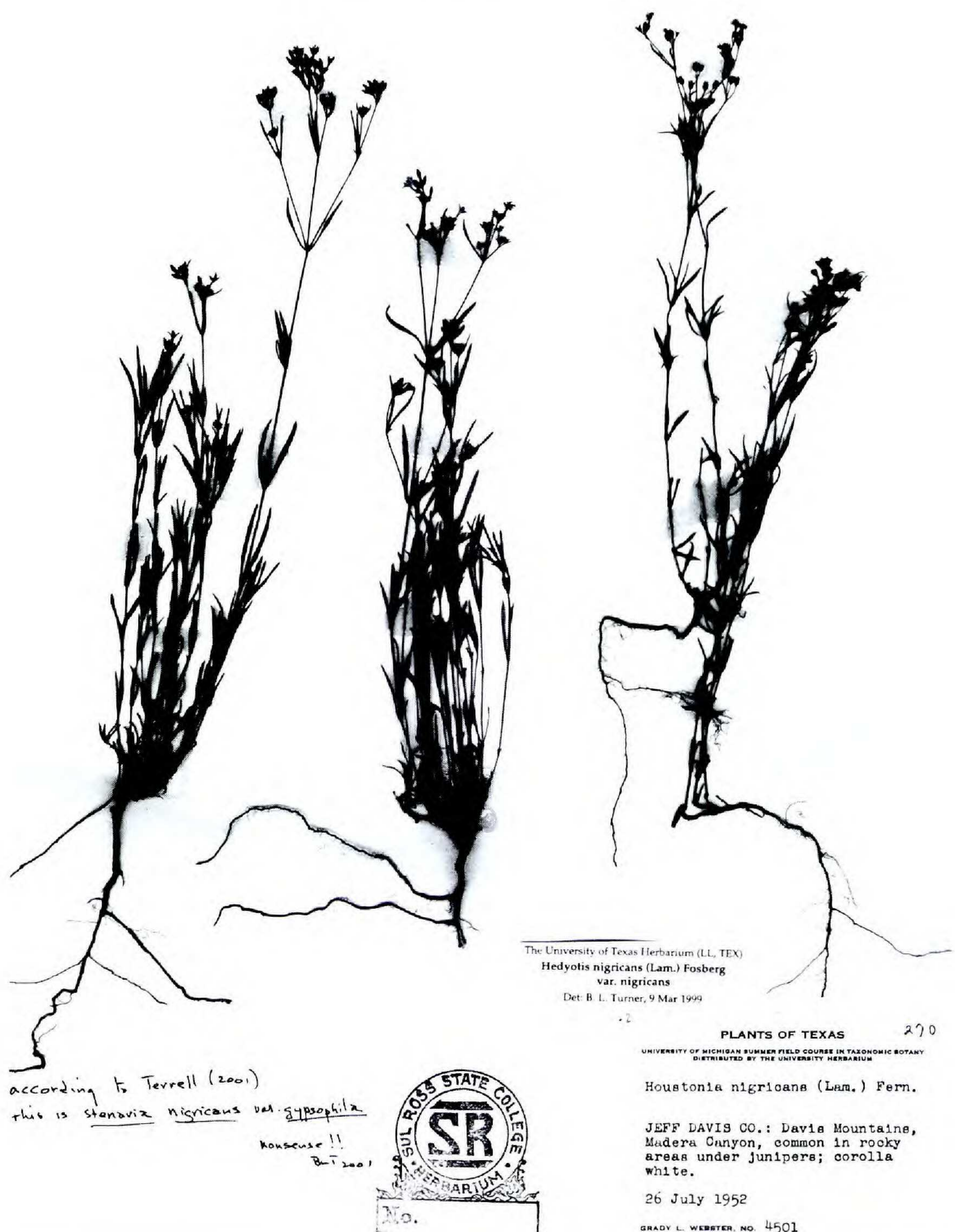


FIG. 2. *Hedyotis nigricans* var. *nigricans* (sensu Turner 1995); duplicate of Webster 4501 (SRSC); which Terrell recognized as *H. nigricans* var. *gypsophila*. Holotype of the latter is pictured in Fig. 3.

not be reiterated, this phenomenon being well documented by Powell and Turner (1977) and Turner and Powell (1979).

It should be noted that Terrell seemingly ignored my published comment (Turner 1993) that “This taxon [var. *gypsophila*] is represented by 45 or more

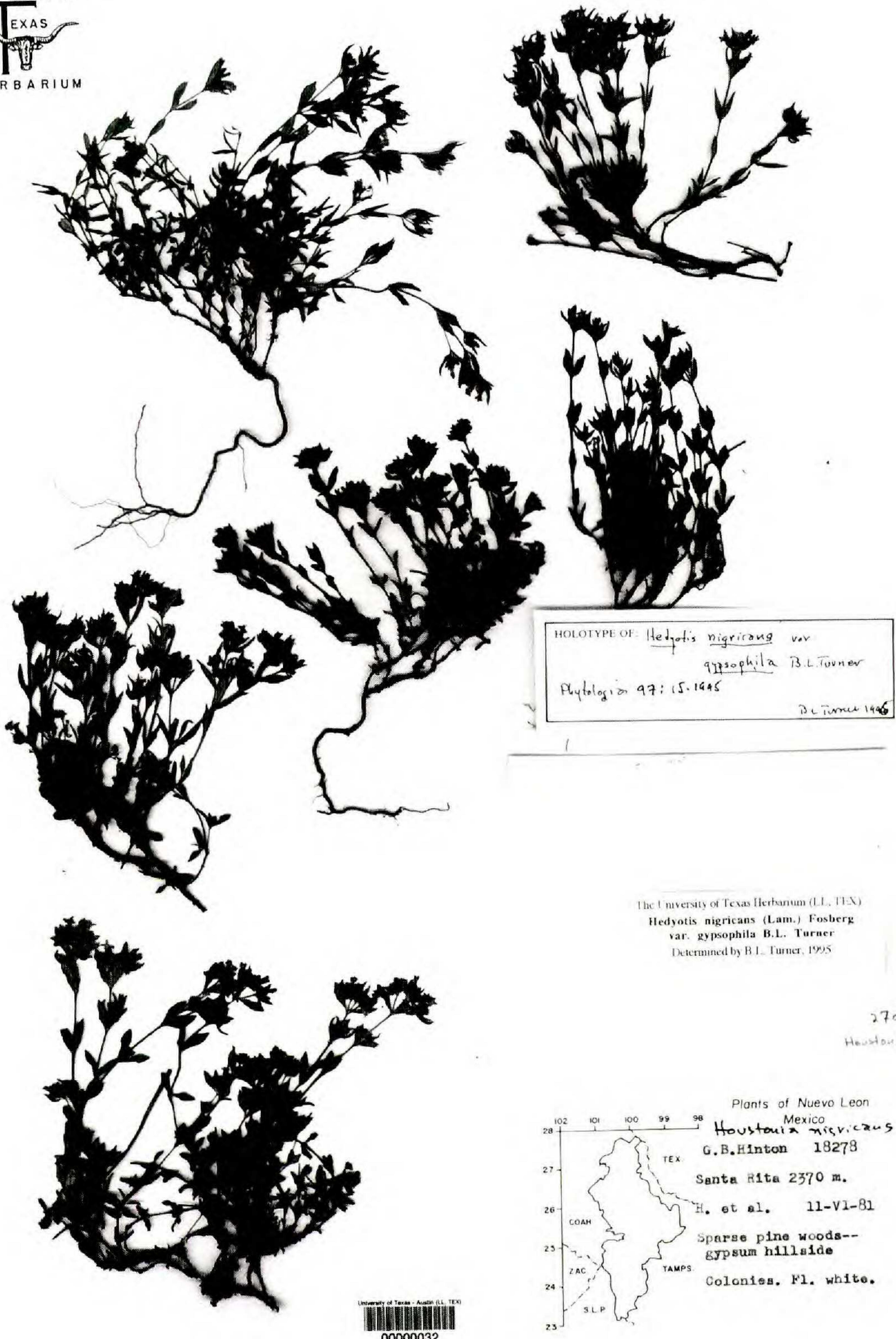


FIG. 3. Holotype of *Hedyotis nigricans* var. *gypsophila* (TEX); according to Turner (1995) populational units of this taxon are confined to mostly gypsum outcrops of southernmost Coahuila, Nuevo Leon, San Luis Potosi and closely adjacent southernmost Tamaulipas, Mexico.

collections at LL, TEX, mostly obtained from gypseous soils in the state of Nuevo Leon." This is not to say that occasional plants of var. *gypsophila* in north central Mexico might not approach var. *nigricans* in this or that character, but such "intermediates" do not occur in Texas. Indeed, var. *nigricans* can be found in relatively close proximity to var. *gypsophila* in Nuevo Leon without clear intermediates, the former occurring on calcareous soils (e.g., Hinton et al. 24351, 24575, 25940, etc., all TEX), the latter on gypseous soils (e.g., Hinton et al. 24373, 27183, etc., TEX). In fact, my initial taxonomic sense was to recognize var. *gypsophila* as specifically distinct, but such treatment would deny the occasional intermediates, these mostly occurring in regions of near geographical contact.

It should be emphasized that var. *gypsophila* is distinguished from var. *nigricans* by more than habit, leaf shape and calyx vestiture. The upper leaf surfaces of the former are more nearly papillose; those of the latter having surface-sculpturing more like that of the epidermis of a peanut. In short, there are a syndrome of characters which provide for the recognition of both taxa, although the occasional plant from this or that population might lack one or another of the characters concerned.

Such identification problems are touched upon by numerous workers, including my own (Turner et al. 1988). Leaf shape and habit vary considerably among populations of var. *nigricans* in Texas. Thus, heavily browsed plants will appear much branched from the base, and newly produced basal shoots will possess somewhat broader leaves. No doubt such plants occasioned the attribution of var. *gypsophila* to Texas, and probably those Mexican collections cited by Terrell as occurring outside the distribution of var. *gypsophila* sensu the present author.

Finally, I can't help but note that I currently live among populations of *H. nigricans* var. *nigricans* in Trans-Pecos, Texas, and have examined numerous populations from throughout this region and nearly all consist of plants identifiable as var. *nigricans* as defined by both Terrell and myself, except as how one might let the occasional over-browsed plant cloud one's identification.

ACKNOWLEDGMENTS

It is a pleasure to acknowledge the input of two reviewers, Guy Nesom and Piero Delprete, whose comments greatly improved the present contribution.

REFERENCES

- POWELL, A.M. and B.L. TURNER. 1977. Aspects of the plant biology of the gypsum outcrops of the Chihuahuan Desert. Natl. Park Service Trans. & Proc., Ser. 3:315–325.
- TERRELL, E.E. 2001. Taxonomy of *Stenaria* (Rubiaceae: Hedyotideae), a new genus including *Hedyotis nigricans*. Sida 19:591–614.
- TURNER, B.L. 1995. Taxonomic overview of *Hedyotis nigricans* (Rubiaceae) and closely allied taxa. Phytologia 79:12–21

- TURNER, B.L. and A.M POWELL. 1979. In: Goodin and Northington, eds. Deserts, gypsum and endemism. International Center of Arid and Semiarid Land Studies. Texas Tech Univ., Lubbock.
- TURNER, B.L., M.W. TURNER, and J.C. CRUTCHFIELD. 1988. Populational analyses and new combinations in *Psilostrophe tagetina* and *P. gnaphalodes* (Asteraceae, Heliantheae). *Phytologia* 65:231–239.